

**REMARKS**

The present application contains claims 1-5, 7-11, 13, 17-18 and 26-34. Claims 26 and 31 were amended.

Claim 34 stands rejected as containing subject matter which was not described in the specification. Applicants note that the reference brought forth in the previous filed response was in error and that a correct reference to a supporting passage is on page 1, lines 26-28. Applicants thank the Examiner for pointing out this error, so that it could be corrected.

Claim 31 was amended to replace the term "channel" by the term "connection" in order to conform with the rest of the claim and the claims dependent on claim 31 which use the term "connection". Applicants believe these two terms are interchangeable and amend the claim for clarity.

Claims 1-5, 7-11 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen et al. (US 5,712,851) in view of Baker-Harvey (US 6,385,638). Applicants respectfully traverse the rejection and state that the proposed combination does not provide a *prima facie* case of obviousness.

According to the Examiner, Nguyen teaches:

accumulating data from a plurality of channels (col. 2, lines 1-4), at respective predetermined input rates (col. 3, lines 2-5);

providing data of each of the plurality of channels, at respective predetermined output rates (col. 3, lines 15-17);

scheduling a processor of the server to handle the accumulated data from at least one first one of the channels (col. 3, lines 9-12), without interruption, once during a first cycle time (col. 2, lines 9-19), defined by the respective input and output rates of the first channels (col. 3, lines 2-5 and 15-17); and

scheduling the processor to handle the accumulated data from at least one second one of the channels, without interruption, once during a second cycle time different from the first cycle time, the second cycle time being defined by the respective input and output rates of the second channels (col. 3, lines 2-5 and 15-17).

Applicants respectfully disagree. Nguyen does not teach any of the requirements of claim 1 and in fact deals with a totally different field in the art.

Regarding the first clause in claim 1, while Nguyen does describe accumulating data from a plurality of channels, Nguyen does not teach accumulating the data from the plurality of channels at predetermined rates. On the contrary, the apparatus of Nguyen operates in an asynchronous transfer mode (ATM) network (col. 2, line 2), which as its name indicates and as is well known in the art (see for example U.S. patent 5,563,885 to Witchey, col. 1, lines 66-67), carries asynchronous data which is not received at predetermined rates. The patent of Nguyen specifically relates to this problem on column 1, lines 41-53. Furthermore, Nguyen states specifically that the apparatus handles also channels operating according to variable bit rate and available bit rate modes (col. 3, lines 57-58), both of which are only recommended for data not even attempted to be received at a predetermined rate (for data transmitted at a predetermined rate ATM uses the CBR operation mode).

The passages on column 3, lines 2-5, to which the Examiner referred, does not relate to the rate at which the data is accumulated from the plurality of channels, but to the rate at which scheduler 10 operates on the accumulated data of all the channels together.

Regarding the second clause in claim 1, while Nguyen does describe providing data from a plurality of channels, Nguyen does not teach providing the data from the plurality of channels at respective predetermined rates. In Nguyen, the acts of the scheduler and transmitter (the providing) are essentially combined (col. 3, lines 13-15) and are therefore discussed together below.

Regarding the third and fourth clauses of claim 1, Nguyen does not schedule the processor to handle the data from the channels once in respective cycles defined by the predetermined input and output rates. Nguyen handles cells at a predetermined rate (col. 3, lines 2-5, 15-17) as stated by the Examiner, but this is not the rate at which the channels are handled but the rate of operation of the scheduler. The rate of handling of a specific channel in Nguyen is calculated as the cell rate of the scheduler (which is the same for all channels) multiplied by the cell to cell spacing (C2CS) of the specific channel (col. 3, lines 15-25). As the cell to cell spacing may vary due to collisions (Nguyen, col. 3, lines 38-48) and/or linked lists located in a single slot (Fig. 2B of Nguyen), the cell handling in Nguyen does not necessarily occur during the cycle time of the channel as would be defined by input and output predetermined rates of the channel.

Regarding col. 2, lines 9-19 of Nguyen, to which the Examiner also related, applicants note that they found there no mention of scheduling handling once during a first, second or any cycle time.

In the response to the previous office action, the undersigned used the term "fixed cycles" to represent the claim restrictions "predetermined input rates" and "predetermined output rates". The undersigned thought that that this would make the arguments clearer, and did not think in depth of the possible differences in scope between the terms (which at the moment seem minor if any). As this use of terms did not add clarity (and regretfully added confusion), the undersigned rewrote the arguments more rigorously using the words of the claims, and retracts any references made to the term "fixed cycles".

At least some of the dependent claims have additional limitations that are not *prima facie* obvious. Claim 2, for example, requires that the first cycle begins concurrently with a second cycle. As Nguyen does not explicitly define predetermined channel cycles and his cycles are average cycles defined by the actual processing times of each channel, Nguyen's cycles do not begin concurrently, if it is at all possible to compare the average cycles of Nguyen to the predetermined cycles of the present application. Applicants reiterate that the cycles in claim 1 are cycles of the channels and not of the remote access server.

The Examiner stated that column 2, lines 16-19 and column 3, lines 8-12 and 34-35 of Nguyen describe the concurrency of channel cycles required by claim 2. Applicants do not understand the relevance of these citations to the concurrency of the channel cycles.

Claim 4, for example, requires that scheduling the processor to handle the accumulated data comprises scheduling the processor, during the second cycle, to handle the accumulated data from substantially all the at least one second channels, before scheduling the processor to handle data from any other of the plurality of channels. Column 2, lines 22-24, referred to by the Examiner, refers to handling a single slot and not to channel cycles. Applicants did not understand the Examiner's statement regarding this claim on page 12 of the office action. The fact that each slot states to which channel (VC) it relates, and the fact that the slots are handled in a continuous fashion does not appear to be relevant to the handling of a specific channel, without information on which of the slots belong to the specific channel.

For brevity, further dependent claims are not discussed. The dependent claims are patentable at least because they depend on claim 1, which is believed to be allowable, as discussed above.

Claims 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen et al. (US 5,712,851) in view of Baker-Harvey (US 6,385,638) and Gray et al. (US 5,568,402).

Claim 17 requires a scheduler which schedules a processor to handle accumulated data from a first channel once during a first cycle time, defined by the timing of the driver of the first channel, and data from a second channel once during a second cycle time different from the first cycle time.

The Examiner stated that Nguyen teaches a remote access device that accumulates data from respective channels, at respective predetermined input rates and provide data of the channels at respective predetermined output rates. As discussed above, regarding claim 1, Nguyen describes average output rates and asynchronous (random) input rates.

The Examiner stated that Nguyen teaches a scheduler which schedules the processor to handle data from a first channel during a first cycle time and from a second channel during a second cycle time. As discussed above, regarding claim 1, Nguyen describes average processing cycles and does not teach or suggest performing the processing within predetermined cycles.

The Examiner stated that Gray teaches a scheduler that schedules a processor to handle accumulated data defined by the timing of the driver of the first channel (col. 5, lines 8-10). Applicants respectfully note that claim 17 requires that the first cycle time be defined by the timing of the driver of the first channel, not by the accumulated data. Having the first cycle time defined by the timing of the first channel driver is not taught or suggested by either of Nguyen or Gray. In Gray, the scheduler schedules the operation of the driver and therefore the scheduler does not handle data at times defined by the timing of the driver (which it itself schedules).

Therefore, in view of the lack of elements of the claim in the cited references, applicants respectfully submit that a *prima facie* case of obviousness was not established by the Examiner with regard to claim 17. In view of the lack of elements, applicants do not relate to the question of combining Nguyen and Gray, since even if such combination were obvious it would not result in the present invention. Claim 18 is patentable at least because it depends on claim 17.

Claims 26-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Witchy (US 5,563,885) in view of Miller et al. (US 5,987,031). Applicants respectfully disagree.

Claim 26 was amended to emphasize what was inherent in the claim, that the short cycle channels are all scheduled for handling before scheduling the handling of data of any long cycle channel. This requirement was implicit in the old claim in requiring determining whether a current short cycle has elapsed after scheduling the processor to handle the data from all the short cycle channels; and scheduling the processor to handle the accumulated data from one of the at least one long cycle channel if the current short cycle did not elapse. Claim 26 was further amended to state,

what was implicit in the claim (in the last clause), that the scheduling is performed in each short cycle.

Claim 26, as amended, requires scheduling a processor to handle data from all the short cycle channels before scheduling the handling of data of any long cycle channel.

Witchy does not teach or suggest scheduling all the short cycle channels before handling long cycle channels.

Applicant cannot identify in Witchy, short cycles or long cycles which the server keeps track of. But even if the Examiner identifies the irregular number of cells (Fig. 5B of Witchy) between each two processings of blocks of data of the same channel as a cycle (an identification which applicants dispute), Witchy does not teach or suggest handling the data of all the short cycle channels before handling the data of the long cycle channels. As is clearly seen in Fig. 5B, channel C (a long cycle channel under the above interpretation) is handled before channel B (a short cycle channel under the above interpretation).

The passages on col. 2, lines 57-63, col. 3, line 67 to col. 4, line 3 and col. 6, lines 39-64, referred to by the Examiner, describe the determination of the average input rates of the channels and not the scheduling of the handling of the channels or cycles of the handling. Applicants note that the sorting mentioned on line 62 of col. 2, does not relate to the order in which the channels are processed but to an organization used in determining the order. The passage on col. 2, lines 25-30 relates to an object set forth by Witchy to provide a substantially constant bit output rate.

Claims 31-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Witchy (US 5,563,885) in view of Miller et al. (US 5,987,031).

Claim 31 was amended to state specifically that which was implicit in the term "remote access server" appearing in the claim, that the plurality of connections require handling in predetermined rates.

Claim 31 requires scheduling a processor to process data from the plurality of connections in an order determined responsive to a determined quality of service level.

Witchy, col. 7, lines 39-55, sets the rate at which a specific channel is handled (the cycle of the channel). It does not relate to the order in which the channels (connections) are processed as required by claim 31.

The dependent claims add further patentability over Witchy. Claim 33, for example, requires changing the order of scheduling of the connections responsive to a change in the QoS of at least one of the connections. Witchy does not mention a change in the QoS of a connection and

does not mention changing the order of handling of connections responsive to such a change. The quotations brought by the Examiner on columns 5 and 6 do not relate at all to either changing the order of handling of connections for any reason or to QoS. The citation on column 7 was discussed already above regarding claim 31.

**Conclusion**

Applicants appreciate the Examiner's serious and thorough work in examining the present application. Applicants realize the importance in preventing issuance of patents with unpatentable broad claims. Applicants believe that this is also the interest of the assignee of the present patent application, as worthless patents are worthless even if they issued. Applicants, however, are interested in receiving the maximal claim coverage they deserve. As no prior art teaching the contrary was brought to the attention of the applicants, applicants believe the claims as currently worded are patentable.

Applicants further note that each of the independent claims 1, 17, 26 and 31 of the present application refers specifically to the use of a remote access server (RAS), which operates at the lowest protocol layer of the communication layer model. Most of the references brought by the Examiner do not relate to a RAS or even to the lowest protocol layer and therefore solve different problems than the present invention, using different methods than the claims of the present application. For example, Miller, Witchy and Nguyen relate to scheduling ATM cells, a totally different issue than scheduling in a RAS. In the above response, applicants have pointed out specifically for each claim why the references cited against the claim do not teach the present invention. It is noted, however, that one reason why these references do not describe the detail requirements of the claims is that they do not fulfill the basic requirement that they relate to a remote access server.

Furthermore, applicants are of the opinion that it would not be obvious to use methods from higher layer protocols in a RAS. However, since none of these references describes the elements of the present claims for any use, applicants see no point to argue this issue.

As some of the issues discussed above are relatively complex, applicants suggest that these issues be resolved in a telephone conversation with the undersigned. If the Examiner is of the opinion that such a telephone conversation may forward the present application toward allowance, applicants respectfully request that the Examiner call the undersigned at 1 (877) 428-5468. Please note that this is a direct *toll free* number in the US that is answered in the undersigned's Israel office. Israel is 7 hours ahead of Washington.

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In view of the above remarks, applicant submits that the claims are patentable over the prior art. Allowance of the application is respectfully awaited.

Respectfully submitted,  
A. Netzer, et al.



Maier Fenster  
Reg. No. 41,016

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William H. Dippert, Esq.  
Reed Smith LLP  
599 Lexington Avenue, 29th Floor  
New York, NY 10022-7650

Tel: (212) 521-5400